# **FACT SHEET**

# FOR NPDES PERMIT NO. WA-005127-6

# CITY OF ENTIAT PUBLICLY-OWNED TREATMENT WORKS

The City of Entiat is seeking reissuance of the National Pollutant Discharge Elimination System (NPDES) Permit for its publicly-owned treatment works (POTW). The City is located in north-central Washington, approximately 16 miles north of Wenatchee. The POTW serves primarily residential customers, a small number of commercial facility, and an industrial foundry.

The Entiat POTW is a secondary-level treatment facility utilizing an extended aerated oxidation ditch. Treated effluent is disinfected and then discharged through an outfall into the Columbia River. Throughout the term of the previous permit the City has had an excellent record of compliance.

In partial fulfillment of requirements of the State's Growth Management Act, the City submitted a *Comprehensive Sewer Plan*, which was approved by the Department in January 1998. The plan utilized a 20-year planning horizon to study and analyze the effect of projected land uses and population trends on wastewater treatment facilities and other infrastructure. The plan concluded that, although several of the collection system pump stations are deficient and the treatment plant has a need for reliability upgrades and maintenance improvements, the system as a whole has sufficient capacity to serve the City through 2018. Findings of the plan are described in more detail throughout this fact sheet.

This permit requires the City to comply with effluent limitations and conduct influent and effluent monitoring as established in the permit. In addition, the City is required to submit to the Department two Infiltration and Inflow Evaluations and two Wasteload Assessments during the permit cycle, conduct an inspection of the treatment plant outfall. The City is also required to submit an updated Sewer Use Ordinance with numerical concentration limits.

# EXPIRATION DATE: DECEMBER 31, 2010

# TABLE OF CONTENTS

|  | <u>Page</u> |
|--|-------------|
| INTRODUCTION   | 4           |
| GENERAL INFORMATION                                    | 5           |
| BACKGROUND INFORMATION                                 | 5           |
| DESCRIPTION OF THE FACILITY                            |             |
| Collection System                                      | 5           |
| Treatment Plant  |             |
| Electrical Power                                       | 7           |
| Pretreatment   | 7           |
| Sewer Use Ordinance and Local Limits                   |             |
| Residual Solids Management                             |             |
| WASTEWATER CHARACTERIZATION                            |             |
| Priority Pollutants Present in the Effluent            | 10          |
| Description of the Receiving Water                     |             |
| PERMIT STATUS  |             |
| SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT         |             |
| PROPOSED PERMIT LIMITATIONS AND CONDITIONS             | 11          |
| DESIGN CRITERIA  |             |
| TECHNOLOGY-BASED EFFLUENT LIMITATIONS                  | 12          |
| SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS       |             |
| CONSIDERATION OF SURFACE WATER QUALITY-BASED CRITERIA  | 13          |
| Background Water Quality of the Columbia River         |             |
| Mixing Zones   |             |
| Dilution Factor  | 14          |
| Chlorine Considerations                                | 14          |
| Ammonia Considerations                                 | 15          |
| Metals   | 15          |
| Whole Effluent Toxicity                                |             |
| Human Health   |             |
| Sediment Quality                                       | 18          |
| COMPARISON OF EFFLUENT LIMITS WITH THE PREVIOUS PERMIT | 19          |
| GROUND WATER QUALITY LIMITATIONS                       |             |
| MONITORING AND REPORTING                               | 19          |
| OTHER PERMIT CONDITIONS                                | 20          |
| PREVENTION OF FACILITY OVERLOADING                     |             |
| OPERATION AND MAINTENANCE (O & M)                      |             |

# FACT SHEET FOR NPDES PERMIT NO. WA-005127-6 Page 3 of 29

# CITY OF ENTIAT POTW

# EXPIRATION DATE: DECEMBER 31, 2010

| OUTFALL EVALUATION                       |    |
|--|----|
| Updated Sewer Use Ordinance              | 21 |
| GENERAL CONDITIONS                       | 21 |
|  |    |
| PERMIT ISSUANCE PROCEDURES               |    |
| PERMIT MODIFICATIONS                     | 21 |
| RECOMMENDATION FOR PERMIT ISSUANCE       | 21 |
| REVIEW BY THE PERMITTEE                  | 22 |
|  |    |
| APPENDIX APUBLIC INVOLVEMENT INFORMATION | 23 |
|  |    |
| APPENDIX BGLOSSARY                       | 24 |
|  |    |
| APPENDIX C RESPONSE TO COMMENTS          | 29 |

FACT SHEET FOR NPDES PERMIT NO. WA-005127-6 Page 4 of 29

#### CITY OF ENTIAT POTW

EXPIRATION DATE: DECEMBER 31, 2010

#### INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the U. S. Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the State of Washington (State) on the basis of Chapter 90.48 RCW (Revised Code of Washington) which defines the Department of Ecology's (Department) authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 Washington Administrative Code), technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC) and water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the State is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit.

This permit contains the technology-based effluent limitations as given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (Federal) and in Chapter 173-221 WAC (State). A preliminary assessment of the discharge's potential for exceedance of the water quality standards for chlorine and ammonia has been made. Where there is a lack of adequate data indicating the discharger's potential for exceedance of the water quality criteria, this permit does not include water quality-based numeric effluent limitations. Based on the Department's preliminary evaluation, the permit may include monitoring requirements and/or specified measures to control discharges of these toxic pollutants.

One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see <u>Appendix A--Public</u> Involvement of the fact sheet for more detail on the Public Notice procedures).

This fact sheet has been reviewed by the Permittee and errors in fact have been corrected. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments (Appendix D) will become part of the file on this permit and parties submitting comments will receive a copy of the Department's response. This fact sheet will not be revised. Changes to the permit will be addressed in Appendix D--Response to Comments.

EXPIRATION DATE: DECEMBER 31, 2010

| GENERAL INFORMATION       |   |  |  |
|---------------------------|---|--|--|
| Applicant                 | City of Entiat  |  |  |
| Facility Name and Address | City of Entiat Publicly-Owned Treatment Works<br>1961 Lakeshore Drive<br>Entiat, WA 98822 |  |  |
| Type of Treatment         | Extended aeration, secondary clarification and chlorine disinfection.                     |  |  |
| Discharge Location        | Columbia River, River Mile 485.0  |  |  |
|                           | Latitude: 47° 40' 41" N   |  |  |
|                           | Longitude: 120° 12' 20" W.  |  |  |
| Water Body ID Number      | WA-CR-1040  |  |  |

#### **BACKGROUND INFORMATION**

#### **DESCRIPTION OF THE FACILITY**

The City of Entiat is located in Chelan County, Washington, along State Highway 97A, approximately 16 miles north of Wenatchee, near the confluence of the Entiat and Columbia Rivers. The City has a population of approximately 625 persons and a land area of 870 acres. The City's economy is based on fruit growing, fruit processing, lumbering, and light industries. Tourism and recreation are also significant to the area.

The City's treatment plant and most of the collection system were built in 1977 and 1978. In 1997 the City submitted a *Comprehensive Sewer Plan (CSP)*, to the Department for review and approval. The *CSP* was prepared at the City's request in response to State Growth Management Act requirements. The plan addressed the existing condition of the sanitary sewer system, determined future needs, and developed a schedule and financial plan for upgrades. The original plans for the treatment works made provisions at each stage of the treatment process to expand the system to a capacity of 0.2 million gallons per day (MGD). Much of the narrative in this fact sheet describing the treatment plant and collection system was taken from the approved plan.

# **Collection System**

The sewer system consists of gravity collection systems in six basins. Gravity flow is to a low point in each basin from which sewage is pumped and conveyed to the treatment plant in force mains. Force mains were constructed of either PVC or asbestos concrete. All pump stations are duplex facilities (two pumps). The Central Basin, serving the downtown commercial district, has gravity flow directly to treatment plant.

FACT SHEET FOR NPDES PERMIT NO. WA-005127-6 Page 6 of 29

#### CITY OF ENTIAT POTW

EXPIRATION DATE: DECEMBER 31, 2010

The collection system contains approximately 38,000 linear feet of sewer pipe. Most of the collection system, except for the Central Basin, was constructed of PVC pipe laid in 1977. The Central Basin sewer system consists of approximately 3,070 feet of concrete pipe constructed in 1958.

Assessment of the collection system conducted for the *CSP* found the piping installed in 1977 to be "in good condition. Infiltration is negligible, slopes are sufficient to maintain adequate velocities, and maintenance has been minimal." As part of the 1977 upgrade, the older piping in the Central Basin was cleaned and inspected utilizing remote TV. The piping was found to be serviceable and incorporated into the new system. However, in recent years, this portion of the system has become a maintenance problem with root intrusion and flow restrictions. Pieces of concrete pipe have been observed in the collected grit at the treatment plant, resulting from sewer cleaning, and replacement of this pipe may soon be necessary. The *CSP* recommends the City be reinspected with remote TV and that failing portions of the system be replaced (pp. 4-1).

An assessment of pump stations found them to be generally in compliance with the Department's requirements. However, the School station was determined to have inadequate backup wet well capacity in the event of a power failure and the Lakefront station was found to have inadequate pumping capacity (*CSP*, pp. 4-2).

#### **Treatment Plant**

The City's extended aeration treatment plant, constructed in 1978, consists of a headworks, aeration basin (oxidation ditch), secondary clarifier, chlorine contact chamber, sludge drying beds, and outfall structure. The current approved average monthly design flow is 0.12 MGD. The *CSP* states that, based on expected population growth, it is unlikely the plant will need to be expanded prior to 2018. However, the plan identified several plant components that are in need of replacement or upgrade.

The original treatment plant was constructed with a headworks consisting of a communitor and grit chamber; however, the grit chamber is inoperable. The treatment plant operator addresses this problem by allowing grit to build up in the grit chamber, then a septage company removes and disposes of the grit.

The oxidation ditch is a modified form of the activated sludge process and is classified as extended aeration. Biological removal and conversion of organic solids occur simultaneously in the ditch. The cage rotor mounted on the ditch both aerates the wastewater and keeps it moving. The ditch was found to be structurally sound. The *CSP* determined that a single oxidation ditch does not meet the Department's Class II Reliability requirements. The *CSP* states "The plant will be deficient until a second oxidation ditch is constructed" (p. 4-17).

FACT SHEET FOR NPDES PERMIT NO. WA-005127-6 Page 7 of 29

#### CITY OF ENTIAT POTW

EXPIRATION DATE: DECEMBER 31, 2010

Wastewater from the oxidation ditch flows to the clarifier for separation of suspended solids from the liquid. Clarified liquid passes over the clarifier weirs and flows to the chlorine contact chamber. The existing clarifier has a capacity of 0.1 MGD. Settled sludge is: 1) removed from the clarifier bottom by the recirculation pumps and returned to the oxidation ditch; 2) pumped to the sludge drying bed; or, 3) pumped to the Draimad dewatering device for wasting. To meet the Class II Reliability requirement, the *CSP* recommends construction of a second 0.1 MGD clarifier (p. 4-17).

Clarified wastewater is injected with a chlorine solution just prior to entering the chlorine contact chamber. Chlorinated wastewater is retained in the contact chamber for a minimum of 30 minutes at peak hourly flows before being discharged. The *CSP* acknowledged the previous permit's requirement for a Disinfection Report, but noted that the treatment plant has been in compliance with chlorine and fecal coliform effluent limits, and that an evaluation of the disinfection system should await completion of the treatment plant expansion (p. 4-18).

Treated effluent is conveyed through an enclosed pipe to a single-port diffuser anchored to the streambed approximately 300 feet off-shore and 75 feet below water level at low-flow conditions. The treatment plant is equipped with influent and effluent auto-samplers.

#### **Electrical Power**

Concern was expressed in the *CSP* about the lack of backup electrical power supply in the event of a transformer failure at the Chelan Public Utility District's (PUD) Entiat substation. In the event of a power failure at the substation, the established emergency response is for the PUD to place a portable substation at the site to bypass the failed substation. An eight hour power outage is planned for in this scenario. The *CSP* indicates that in this scenario the pump stations would not operate, and because only 15% of normal influent flows to the treatment plant are by gravity sewers, the oxidation ditch would have several days of emergency storage capacity. Therefore, the *CSP* indicates that, with the exception of the pump station with an inadequate wet well, the City does not require installation of permanent standby generator capacity (pp. 4-6, -8).

# **Pretreatment**

The only significant industrial user (SIU) to the Permittee's facility is Pacific Aerospace and Electronics, Casting Division (PAECD), which located to the City of Entiat in 1994. PAECD is an aluminum foundry and powder coating facility, which employs more than 100 persons at the Entiat plant.

PAECD is classified as a "categorical" industrial user under Federal pretreatment regulations. The Entiat facility falls under the Metal Molding and Casting Point Source Category of 40 CFR Part 464, Subpart A. In addition, the foundry is classed as an SIU: 1) because its discharge comprises approximately 16% of hydraulic loading to the treatment plant when all wastewater

FACT SHEET FOR NPDES PERMIT NO. WA-005127-6 Page 8 of 29

#### CITY OF ENTIAT POTW

EXPIRATION DATE: DECEMBER 31, 2010

streams are discharged during the same day, and 2) the potential for toxic constituents in the foundry's discharge to disrupt treatment plant processes. Federal pretreatment regulations classify a discharger as an SIU when: 1) the discharger contributes more than 5% of a treatment plant's influent loading, or, 2) constituents in the discharge can disrupt treatment plant processes. PAECD currently discharges an average daily flow of roughly 2,000 gallons per day, which comprises approximately 4% of the treatment plant's hydraulic loading. However, the Department classifies the PAECD facility as an SIU on the basis of the potential of its discharges to disrupt treatment plant processes.

The Department issued a Notice of Correction (NOC), dated August 8, 1997, citing two process wastewater discharges earlier in the year from the foundry that severely disrupted treatment plant operations. The NOC required PAECD" to implement control procedures to prevent shock and/or toxic process wastewater discharges to the POTW." In a letter dated October 14, 1997 from the Department, and sent on the City's behalf, PAECD was formally required to develop and submit an engineering report, and was also given an estimate of allowable headworks loadings for the City's POTW. At that time PAECD initiated the process to develop an engineering report (ER), with the goal of allowing the company to operate within the NPDES permit limits of the POTW. One of the tasks identified for the ER was development of local limits to address industrial discharges to the POTW.

# **Sewer Use Ordinance and Local Limits**

The City's previous permit required submittal of a Sewer Use Ordinance to the Department. The City adopted the new ordinance in August 1998. The Sewer Use Ordinance anticipated development of an industrial waste control program, including development of local limits. On October 1, 1998, the City submitted an *Industrial Waste Control Program Allowable Headworks Loading Analysis* to the Department for review and approval. Although the analysis did not set local limits, the capacity of the POTW to treat industrial wastes was assessed, and the portion of that treatment capacity allocated (waste load allocation) to the foundry was made. The analysis was written as an ER and will undoubtedly be utilized as the basis for determination of local limits. This permit requires the City to update the existing Sewer Use Ordinance with concentration limits during this permit cycle.

# **Residual Solids Management**

Due to concern associated with development of a local wellhead protection program, a City water supply well is located only 600 feet from the treatment plant, use of the drying beds was discontinued in early 1995 in favor of a mechanical dewatering device known as DRAIMAD. The City currently utilizes the DRAIMAD system to dewater and bag wasted sludge. The system injects a polymer into the sludge stream, which is then mechanically conveyed and distributed into fabricated disposable bags. As the sludge falls into the bags, the water drains through the porous fabric, leaving the solids in the bag. The full bags are left on the unit to

EXPIRATION DATE: DECEMBER 31, 2010

continue gravity dewatering for several hours, or more typically, overnight. Each bag holds approximately 15 pounds of dry solids. Bags of sludge are stored on site and transported to the county landfill.

# WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge was reported in the NPDES application and in discharge monitoring reports. The effluent is characterized as follows:

#### **Wastewater Characterization of Conventional Pollutants**

| Parameter                            | Influent          | Effluent          |                              |                               |
|--------------------------------------|-------------------|-------------------|------------------------------|-------------------------------|
|                                      | Annual<br>Average | Annual<br>Average | Lowest<br>Monthly<br>Average | Highest<br>Monthly<br>Average |
| Flow (MGD)                           | 0.050             | 0.050             | 0.040                        | 0.058                         |
| BOD <sub>5</sub> (mg/L)              | 190               | 2.75              | 0                            | 6                             |
| TSS (mg/L)                           | 167.5             | 0.75              | 0                            | 3                             |
| Total Coliform (colonies per 100 mL) | NR                | NR                | NR                           | 6                             |
| Total Residual Chlorine (mg/L)       | NR                | 0.47              | 0.36                         | 1.0                           |
| Dissolved Oxygen (mg/L)              | NR                | 3.58              | 3.0                          | 4.8                           |
| Ammonia Nitrogen (mg of N/L)         | NR                | NR                | NR                           | NR                            |
| Temperature, summer (° F)            | 66.2              | 66.2              | 42.8                         | 77.0                          |
| Temperature, winter (° F)            | 55.4              | 48.2              | 33.8                         | 68.0                          |
| pH range                             |                   | Low pH =          | 6.38 High                    | pH = 7.22                     |

NR-Analysis was either not required or not reported.

The Permittee submitted an Effluent Chemical Analysis Report, a priority pollutant scan, in accordance with a requirement in the previous permit. Effluent was sampled on October 18, 1999 and the Department received the laboratory report on January 10, 2000. Only those parameters which were detected, and their concentrations, are presented in the table below. All concentrations are expressed in ug/L.

EXPIRATION DATE: DECEMBER 31, 2010

# **Priority Pollutants Present in the Effluent**

| Parameter                         | Concentration | Parameter                         | Concentration |
|-----------------------------------|---------------|-----------------------------------|---------------|
| Iron, Total                       | 55.1          | Toluene                           | 0.5           |
| Copper, Total                     | 11.7          | Bromoform                         | 4.6           |
| Zinc, Total                       | 80.0          | Dibromochloromethane <sup>a</sup> | 17.0          |
| Aluminum, Total                   | 116.0         | 2,4,6-Trichlorophenol             | 1.2           |
| Cyanide, Total                    | 14.0          | Pentachlorophenol                 | 0.24          |
| Chloroform                        | 10.0          | Lindane                           | 0.024         |
| Bromodichloromethane <sup>a</sup> | 19.0          |                                   |               |

a-The laboratory reported these constituents as present, but the quantities were estimated, because the concentration was between the method detection level (MDL) and the practical quantitation level (PQL).

It should be noted that the list of priority pollutants the Permittee was required to test contains 126 contaminants. The pollutants detected in the Permittees effluent, and their concentrations, are typical for wastewater treatment plants.

# **Description of the Receiving Water**

The facility discharges to the Columbia River, which is designated as a Class A receiving water in the vicinity of the outfall. According to the State's 303(d) list, this segment of the river is classified as water quality-impaired for the parameter of total dissolved gas. Characteristic uses include the following:

Water supply (domestic, industrial, agricultural); stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

The *Headworks Loading Analysis* contains data on background water quality of the Columbia River. The data are presented in the CONSIDERATION OF SURFACE WATER QUALITY-BASED CRITERIA (p. 11) section of this fact sheet because of its relevance to the water quality-based effluent limits and the determination of potential for treatment plant discharge to exceed the State's water quality criteria.

# **PERMIT STATUS**

The previous permit for this facility was issued on January 26, 1995. The previous permit placed effluent limitations on 5-day Biochemical Oxygen Demand (BOD<sub>5</sub>), Total Suspended Solids (TSS), pH, Fecal Coliform bacteria, and Total Residual Chlorine.

An application for permit renewal was received by the Department on December 30, 1999 and accepted by the Department on March 8, 2000.

EXPIRATION DATE: DECEMBER 31, 2010

#### SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

A compliance inspection without sampling was conducted on March 20, 2000.

During the history of the previous permit, the Permittee has remained in compliance, based on Discharge Monitoring Reports (DMRs) submitted to the Department and inspections conducted by the Department.

After issuance of the previous permit, but before its effective date, Administrative Order No. DE 95WQ-C109 established interim Residual Chlorine effluent limits that were less stringent than those established in the permit. The interim limits were established to allow the City adequate time to evaluate the treatment plant's disinfection system and submit a Disinfection Report. In a note received by the Department on December 20, 1995, the operator stated that the treatment plant had been in compliance with both the more stringent Residual Chlorine limits and the Fecal Coliform Bacteria limits. The *CSP* reaffirmed the City's desire to continue using chlorination, but recommended the mode of disinfection be reevaluated when the treatment plant is expanded to its full capacity.

# PROPOSED PERMIT LIMITATIONS AND CONDITIONS

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC) or Sediment Quality Standards (Chapter 173-204 WAC). The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

#### **DESIGN CRITERIA**

In accordance with WAC 173-220-130(1)(a), effluent limitations shall not be less stringent than those based upon the design criteria for the facility, which are contained in approved engineering plans, reports, or approved revisions. Also, in accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

EXPIRATION DATE: DECEMBER 31, 2010

The design criteria for this treatment facility are:

# **Previous Design Standards for Entiat WWTP**

| Parameter                                  | Design Quantity |
|--|-----------------|
| Monthly average flow (MGD)                 | 0.12            |
| BOD influent loading (lbs/day)             | 220             |
| TSS influent loading (lbs/day)             | 260             |
| Design population equivalent (# of people) | 1,100           |

# TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by Federal and State regulations. These effluent limitations are given in the 40 CFR Part 133 (Federal) and in Chapter 173-221 WAC (State). These regulations are performance standards that constitute "all known available and reasonable methods of prevention, control, and treatment" (AKART) for municipal wastewater.

The following technology-based limits for pH, Fecal Coliform Bacteria, BOD<sub>5</sub>, and TSS were the most appropriate limits determined from: (1) WAC 173-220-130(3)(b); (2) WAC 173-221-030(11)(b); (3) WAC 173-221-040(1); (4) the fact sheet associated with the previous permit, and (5) the Department's *Permit Writer's Manual*:

| <u>Parameter</u>   | <u>Limit</u>  |
|--|---|
| <u>pH</u> :  | Shall not be outside the range of 6.0 to 9.0 standard units.  |
| Fecal Coliform Bacteria:                                       | Monthly Geometric Mean Limit = 200 colonies/100 mL; and Weekly Geometric Mean Limit = 400 colonies/100 mL   |
| BOD <sub>5</sub> and <u>TSS</u> :                              | Average Weekly Limit = 45 mg/L; and<br>Average Monthly Limit is the most stringent of:<br>a. 30 mg/L; or<br>b. may not exceed fifteen percent (15%) of the<br>average influent concentration. |
| Monthly BOD <sub>5</sub><br>and TSS effluent<br>mass loading = | Average Monthly BOD Effluent Limit (30 mg/L) x<br>Weight constant (8.34) x<br>Maximum Month Design Flow (0.12 MGD) = 30 lbs/day   |
| Weekly BOD <sub>5</sub>  |   |

EXPIRATION DATE: DECEMBER 31, 2010

and TSS effluent mass loading =

1.5 x Monthly Effluent Mass Loading = 45 lbs/day

The above technology-based effluent limits remain unchanged from the previous permit.

# SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a State regulation designed to protect the beneficial uses of the surface waters of the State.

# CONSIDERATION OF SURFACE WATER QUALITY-BASED CRITERIA

# **Background Water Quality of the Columbia River**

The *Headworks Loading Analysis* contains data on background water quality of the Columbia River. The data were received from the U. S. Department of Energy's surface environmental surveillance project. Samples were collected at the Vernita Bridge, which is located approximately 95 miles downstream of Entiat, and is the closest monitoring site to the City. Samples were collected during 1996 and 1997 and analyzed using high resolution (low detection limits) methods. The data are as follows:

# **Background Water Quality in the Columbia River**

| Parameter             | Background Level in<br>Receiving Stream <sup>a</sup> |
|-----------------------|--|
| Arsenic               | 0.76 ug/L  |
| Chromium (Trivalent)  | 0.42 ug/L  |
| Chromium (Hexavalent) | 0.42 ug/L  |
| Copper                | 1.45 ug/L  |
| Cyanide               | 3.05 ug/L  |
| Lead                  | 0.57 ug/L  |
| Mercury               | 5.05 X 10 <sup>-4</sup> ug/L                         |
| Nickel                | 1.11 ug/L  |
| Silver                | 0.257 ug/L   |
| Zinc                  | 7.71 ug/L  |

a-Upper 95% confidence interval boundary except cyanide, which was not detected in analysis (Detection limit assumed).

EXPIRATION DATE: DECEMBER 31, 2010

# **Mixing Zones**

The Water Quality Standards allow the Department to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving AKART and in accordance with other mixing zone requirements of WAC 173-201A-100.

This permit authorizes chronic and acute mixing zones for the Permittee's discharge. The dimensions of the mixing zones are identical to those in the previous permit.

# **Dilution Factor**

The dilution factors used in this permit were those established by the previous permit and utilized in the *Headworks Loading Analysis*. The dilution factors are: chronic 405; acute 41. These dilution factors are extremely conservative, based on a minimum stream flow volume of 20,000 cubic feet per second (cfs), which appeared in Chapter 173-563 WAC. A search of the historical records for releases from Rocky Reach Dam indicates river flow volumes have been at least 50,000 cfs since January 1996.

# **Chlorine Considerations**

Discharges from wastewater treatment plants that use chlorine for coliform control are likely to have a reasonable potential for chlorine toxicity, unless, dechlorination or other chlorine control methods are practiced at the plant and there is adequate dilution of the effluent by the receiving water.

Based on the Department's preliminary assessment of the effluent mixing and dilution in the receiving water that was done for the previous permit, the discharge from this facility has a reasonable potential to exceed the water quality standards for chlorine. (See *Reasonable Potential Calculation* spreadsheet in Appendix C of this fact sheet.) The established dilution factors were then used to calculate revised chlorine effluent limits (see *Water Quality-based Permit Limit Calculations* spreadsheet in Appendix C). The established and revised limits are:

|             | Average Monthly | Daily Maximum |
|-------------|-----------------|---------------|
| Established | 0.5 mg/L        | 0.8 mg/L      |
| Revised     | 0.3 mg/L        | 0.8 mg/L      |

The revised average monthly limits were determined to be approximately the same, and the revised daily maximum concentration is slightly less. However, the dilution factors are known to be extremely conservative, and because recalculating chlorine limits using the larger, actual

FACT SHEET FOR NPDES PERMIT NO. WA-005127-6 Page 15 of 29

#### CITY OF ENTIAT POTW

EXPIRATION DATE: DECEMBER 31, 2010

Columbia River flows would result in less stringent limits, this permit will retain the same residual chlorine limits as the previous permit.

# **Ammonia Considerations**

Nitrification is expected to occur in the biological systems as part of their normal operation, especially in the warmer seasons. Nitrification causes the effluent ammonia concentration to decrease, which will correspondingly reduce the potential for exceedance of the ammonia criteria in the receiving water. The Permittee may monitor the concentrations of nitrite and nitrate in the effluent to verify and measure the extent of the ammonia nitrification in the Permittee's facility.

It is not known whether there is a reasonable potential for effluent ammonia present in the discharge to exceed the water quality standards because the treatment plant's discharge has never been monitored for this parameter. Therefore, this permit requires routine monitoring of the effluent ammonia to provide adequate data for a reasonable potential determination at permit reissuance.

#### Metals

The *Headworks Loading Analysis* contains an assessment of the potential for metals present in the influent to interfere with treatment plant processes, or cause exceedances of the State's water quality criteria or biosolids criteria. The study's methodology was conservative. For each metal and cyanide, the maximum loading which can be received by the treatment plant without inhibiting treatment processes, or causing exceedances of the water quality criteria or biosolids criteria was determined. The lowest mass loading for each pollutant was identified as the 'controlling criteria' and serves as the basis of the *Headworks Loading Analysis*. The table below is adapted from page 27 of the *Headworks Loading Analysis* and lists the analyzed pollutants and the controlling criteria.

EXPIRATION DATE: DECEMBER 31, 2010

# **Controlling Criteria of the Entiat POTW**

| Parameter            | Controlling Criteria         | Controlling Criteria<br>Mass Loading, in g/day |
|----------------------|------------------------------|--|
| Arsenic              | Biosolids                    | 19   |
| Cadmium              | Biosolids                    | 189  |
| Chromium, Trivalent  | Biosolids                    | 1893   |
| Chromium, Hexavalent | Biosolids                    | 189  |
| Copper               | Water quality                | 189  |
| Cyanide              | Water quality                | 19   |
| Lead                 | Water quality                | 19   |
| Mercury              | Water quality                | 19   |
| Nickel               | Biosolids                    | 189  |
| Silver               | Treatment process inhibition | 47   |
| Zinc                 | Biosolids                    | 946  |

After the above mass loading criteria for each pollutant was determined, the existing domestic contribution to the POTW was subtracted, and PAECD was allocated 50 percent of the remainder. PAECD's allocations appear in Special Condition S1. as mass loading effluent limits.

# Whole Effluent Toxicity

The State's Water Quality Standards require that the applicant's discharge not cause toxicity in the receiving water. Many toxic pollutants cannot be directly measured by commonly available detection methods, due to their extremely low concentrations. However, toxicity may be observed by exposing living organisms to the discharged wastewater during laboratory tests and directly measuring the organisms' response. Toxicity tests measure the aggregate toxicity of the whole effluent and, therefore, this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

In accordance with WAC 173-205-040, the applicant's discharge has been determined to have significant potential to contain toxic pollutants. This permit contains requirements for WET testing as authorized by RCW 90.48.520 and 40 CFR 122.44.

Acute WET tests measure mortality as the observed response to the toxicity in a facility's final effluent. Dischargers who monitor their wastewater with acute toxicity tests are providing an indication of the potential lethal effect of their discharges to living organisms resident in the receiving water environment.

Chronic WET tests usually involving a critical stage of the test organism's life cycle, or the entire life cycle, measure various observable sublethal toxic responses such as retarded growth or reduced reproduction. Organism survival may also be measured in chronic WET tests.

FACT SHEET FOR NPDES PERMIT NO. WA-005127-6 Page 17 of 29

#### CITY OF ENTIAT POTW

EXPIRATION DATE: DECEMBER 31, 2010

Accredited WET-testing laboratories have the proper WET testing protocols, data requirements, and reporting format, and are capable of calculating an NOEC, LC<sub>50</sub>, EC<sub>50</sub>, IC<sub>25</sub>, etc. All accredited labs have been provided the most recent version of the Department's Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* which is referenced by this permit. Any Permittee interested in receiving a copy of this publication may call the Department's Publications Distribution Center 360-407-7472 and request a copy. The Department recommends that Permittees, required to conduct WET testing, send a copy of the acute or chronic WET toxicity sections(s) of their permits to their laboratory of choice prior to conducting any WET testing.

Effluent characterization for toxicity is delayed until the third year of this permit cycle. This delay is incorporated into the permit to allow the City time to budget for the rather expensive characterization.

The City has expressed a desire to expand the POTW to accommodate growth, although the planning and grant-seeking process has not yet begun. The City has inquired as to the possibility of delaying WET characterization until after the expansion is completed. In response, the Department will consider a request to delay characterization only if the City has demonstrated a clear commitment to the expansion, e. g., an engineering report has been approved by the Department and the City is actively seeking funding. Otherwise, the City must implement the characterization as required in this permit.

A request to the Department to delay WET characterization *must* be in the form of a formal, written letter, detailing the reasons for the delay and the steps the city has taken to implement the expansion. The request should be addressed to the City's NPDES permit manager.

# **Human Health**

The State's Water Quality Standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the State by the EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the applicant's discharge is likely to contain chemical pollutants regulated for human health. The applicant's high priority status is based on (1) the applicant's status as a major discharger, (2) knowledge of data or process information indicating regulated chemicals occur in the discharge, and (3) the fact that the applicant discharges to a waterbody that is 303(d)-listed for a regulated chemical, which is known or expected to be found in the applicant's discharge. The Permittee's SIU discharges metals and other pollutants which have the potential to exceed the human health criteria in the receiving water. These pollutants include: inorganic arsenic, mercury and nickel. Human health criteria are often established at much lower levels than aquatic toxicity-based water quality criteria. Neither Aeromet's ER nor the *Maximum Allowable Headworks Loading* analysis addresses compliance with the human health criteria.

FACT SHEET FOR NPDES PERMIT NO. WA-005127-6 Page 18 of 29

#### CITY OF ENTIAT POTW

EXPIRATION DATE: DECEMBER 31, 2010

A reasonable potential determination of the applicant's discharge to cause an exceedance of the Human Health-based Water Quality Standards was evaluated, as required by 40 CFR 122.44(d), using the procedures given in the *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001) and the Department's *Permit Writer's Manual* (Ecology Publication 92-109, July, 1994). (See the *Reasonable Potential Calculation for Protection of Human Health* spreadsheet in Appendix C.) The preliminary determination indicated that the existing data resulted in no reasonable potential determination; however, the Permittee's discharge has not been adequately characterized for all the potentially toxic pollutants discharged by Aeromet America. Therefore, the Department reserves the right to conduct an additional analysis of the potential to exceed the human health criteria when sufficient data are collected to conduct the analysis.

# **Sediment Quality**

The Department has promulgated Sediment Management Standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards stipulate that the Department may require dischargers to evaluate the potential for their wastewater to cause a violation of the applicable standards, WAC 173-204-400.

The Department has determined that the applicant's discharge has the potential to cause a violation of the Sediment Management Standards because of the presence of metals and other toxics in the discharge. A condition has been placed into this permit which will require the Permittee to demonstrate that either the point of discharge is not an area of deposition, or, if the point of discharge is a depositional area, that there is not an accumulation of toxic pollutants in the sediments in the vicinity of the outfall.

At this time, the Department has been unable to conclusively determine the potential for the applicant's discharge to cause a violation of Sediment Management Standards, because the riverbed in the area of the outfall has not been inspected during the last five years. If the Department determines in the future that there is a potential for violation of those standards, an order will be issued requiring the Permittee to demonstrate that either the point of discharge is not an area of deposition or, if the point of discharge is a depositional area, that there is not an accumulation of toxic pollutants in the sediments in the vicinity of the outfall.

EXPIRATION DATE: DECEMBER 31, 2010

# COMPARISON OF EFFLUENT LIMITS WITH THE PREVIOUS PERMIT

| Parameter         | <b>Existing Permit Limits</b>               |                       | Proposed Pe                          | ermit Limits          |
|-------------------|---|-----------------------|--------------------------------------|-----------------------|
|                   | Monthly<br>Average                          | Weekly<br>Average     | Monthly<br>Average                   | Weekly<br>Average     |
|                   | Technology Based Limits                     |                       |                                      |                       |
| BOD               | 30 mg/L<br>30 lbs/day                       | 45 mg/L<br>45 lbs/day | 30 mg/L<br>30 lbs/day                | 45 mg/L<br>45 lbs/day |
| TSS               | 30 mg/L<br>85% removal<br>30 lbs/day        | 45 mg/L<br>45 lbs/day | 30 mg/L<br>85% removal<br>30 lbs/day | 45 mg/L<br>45 lbs/day |
| Fecal<br>Coliform | 200/100 mL                                  | 400/100 mL            | 200/100 mL                           | 400/100 mL            |
| рН                | 6 to 9 standard units 6 to 9 standard units |                       | dard units                           |                       |
|                   | Water Quality Based Limits                  |                       |                                      |                       |
|                   | Monthly<br>Average                          | Daily Maximum         | Monthly<br>Average                   | Daily<br>Maximum      |
| Chlorine          | 0.5 mg/L                                    | 0.8 mg/L              | 0.3 mg/L                             | 0.8 mg/L              |

# **GROUND WATER QUALITY LIMITATIONS**

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

# MONITORING AND REPORTING

Effluent monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

FACT SHEET FOR NPDES PERMIT NO. WA-005127-6 Page 20 of 29

#### CITY OF ENTIAT POTW

EXPIRATION DATE: DECEMBER 31, 2010

The monitoring and testing schedule is detailed in this permit under Special Condition S2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is generally consistent with agency guidance given in the current version of the Department's *Permit Writer's Manual* for oxidation ditch treatment facilities.

This permit requires both BOD<sub>5</sub> and TSS effluent monitoring be conducted once per week (1/week) instead of twice per week, as recommended by the *Permit Writer's Manual*. The rationale for decreasing the effluent monitoring frequencies for these parameters are that the facility has:

- 1. Consistently discharged significantly below the effluent limits contained in the previous permit (see *WASTEWATER CHARACTERIZATION*, p. 7);
- 2. An excellent record of compliance; and,
- 3. An excellent operation and maintenance (O&M) performance.

This permit requires monthly monitoring of effluent ammonia, to verify nitrification is occurring in the treatment plant, and to collect data to conduct a reasonable potential determination for ammonia in the discharge to exceed the water quality criteria.

# OTHER PERMIT CONDITIONS

#### PREVENTION OF FACILITY OVERLOADING

Overloading of the treatment plant is a violation of the terms and conditions of this permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require the Permittee to take the actions detailed in Special Condition S4. to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants. Special Condition S4. restricts the amount of flow.

Based on discussions with the treatment plant operator and the utilities superintendent, as well as a review of plant records, it appears that I&I into the collection system is not a major problem. In particular, very little evidence of infiltration has been observed. Some inflow has been observed during extreme events. In general, inflow appears to be caused by ponding in the vicinity of manhole covers. The *CSP* recommends adjusting the level of manhole frames to correct the inflow problem (p. 4-8).

# OPERATION AND MAINTENANCE (O & M)

This permit contains Special Condition S5. as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that

EXPIRATION DATE: DECEMBER 31, 2010

constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

# **OUTFALL EVALUATION**

Special Condition S8. requires the Permittee to conduct an outfall inspection and submit a report detailing the findings of that inspection. The purpose of the inspection is to determine the condition of the discharge pipe and diffusers, and whether any deposition has occurred in the area of the riverbed.

#### UPDATED SEWER USE ORDINANCE

This permit requires the City to submit an updated Sewer Use Ordinance which include local limits expressed as pollutant concentrations. The existing Sewer Use Ordinance indicates local limits as 'TBD mg/L'. The City has already completed much of the work required to develop local limits in the *Maximum Allowable Headworks Loading Analysis*. The City is cautioned to review all relevant State and Federal environmental regulations before finalizing the ordinance. For instance, State and Federal hazardous waste regulations limit discharges containing concentrations of silver-bearing wastewaters to no more than concentrations greater than 5 mg/L to most POTWs; discharges containing higher concentrations are considered dangerous waste.

# **GENERAL CONDITIONS**

General Conditions are based directly on State and Federal law and regulations and have been standardized for all individual NPDES permits issued by the Department.

# PERMIT ISSUANCE PROCEDURES

# PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards, Sediment Quality Standards, or Ground Water Standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended State or Federal regulations.

# RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic

FACT SHEET FOR NPDES PERMIT NO. WA-005127-6 Page 22 of 29

# CITY OF ENTIAT POTW

EXPIRATION DATE: DECEMBER 31, 2010

life, and the beneficial uses of waters of the State of Washington. The Department proposes that this permit be issued for five (5) years.

# **REVIEW BY THE PERMITTEE**

A proposed permit was reviewed by the Permittee for verification of facts. Only factual items were corrected in the draft permit and fact sheet.

EXPIRATION DATE: DECEMBER 31, 2010

#### APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on July 30, 1999 and August 6, 1999 in the Wenatchee World to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department published a Public Notice of Draft (PNOD) on December 27, 2000 in the Wenatchee World to inform the public that a draft permit and fact sheet were available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
Central Regional Office
15 West Yakima Avenue, Suite 200
Yakima, WA 98902

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (509) 575-2821, or by writing to the address listed above.

EXPIRATION DATE: DECEMBER 31, 2010

# APPENDIX B--GLOSSARY

- **Acute Toxicity**--The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.
- **AKART**--An acronym for "all known, available, and reasonable methods of prevention, control, and treatment" and includes best management practices, as may be stipulated by the Department.
- **Ambient Water Quality**--The existing environmental condition of the water in a receiving water body.
- **Ammonia**--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.
- **Average Monthly Discharge Limitation**--The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month. The daily discharge is calculated as the average measurement of the pollutant over the day.
- **Average Weekly Discharge Limitation --** The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The daily discharge is calculated as the average measurement of the pollutant over the day.
- **Best Management Practices (BMPs)**--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.
- BOD<sub>5</sub>--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD<sub>5</sub> is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the Federal Clean Water Act.
- **Bypass**--The intentional diversion of waste streams from any portion of a treatment facility.
- **Chlorine**--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

# EXPIRATION DATE: DECEMBER 31, 2010

- **Chronic Toxicity**--The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.
- **Class 1 Inspection**--A walk-through inspection of a facility that includes a visual inspection and some examination of facility records. It may also include a review of the facility's record of environmental compliance.
- **Class 2 Inspection**--A walk-through inspection of a facility that includes the elements of a Class 1 Inspection plus sampling and testing of wastewaters. It may also include a review of the facility's record of environmental compliance.
- **Clean Water Act (CWA)**--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.
- **Combined Sewer Overflow (CSO)**--The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.
- Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.
- **Construction Activity**—Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.
- **Critical Condition**--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.
- **Daily Maximum Discharge Limitation**--The greatest allowable value for any calendar day.
- **Dilution Factor**--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction.
- **Engineering Report**--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

# EXPIRATION DATE: DECEMBER 31, 2010

- **Fecal Coliform Bacteria**--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.
- **Grab Sample**--A single sample or measurement taken at a specific time or over as short period of time as is feasible.
- **Industrial Wastewater**--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.
- **Infiltration and Inflow (I/I)**--"Infiltration" means the addition of ground water into a collection system through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of rainfall-caused surface water drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a collection system.
- **Interference**--A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:
- 1. Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and
- 2. Therefore is a cause of a violation of any requirement of the POTW's permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewer sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SWDA), sludge regulations appearing in 40 CFR 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.
- **Mixing Zone**--An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in State regulations (Chapter 173-201A WAC).
- National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

EXPIRATION DATE: DECEMBER 31, 2010

- **Pass through--**A discharge which exits the POTW into waters of the State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.
- **pH**--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.
- **Potential Significant Industrial User**--A potential significant industrial user is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:
  - a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;
  - b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

# Significant Industrial User (SIU)--

- 1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;
- 2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blowdown wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority\* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).
  - Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority\* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.
  - \*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.
- **State Waters**--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and watercourses within the jurisdiction of the State of Washington.

EXPIRATION DATE: DECEMBER 31, 2010

- **Stormwater**--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.
- **Technology-based Effluent Limit**--A permit limit on the discharge concentration and/or mass of an effluent parameter which is based on the ability of a treatment method, or methods to reduce the pollutant.
- **Total Suspended Solids (TSS)**--Total suspended solids are the particulate material in a wastewater or effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.
- **Upset**--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.
- Water Quality-based Effluent Limit--A limit on the discharge concentration and/or mass of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

EXPIRATION DATE: DECEMBER 31, 2010

# **APPENDIX C -- RESPONSE TO COMMENTS**

During the public review period the City of Entiat, through their engineering consultant, submitted the only comments received concerning this permit.

We would like you to consider the possibility that Pacific Aerospace and Electronics, Casting Division could potentially vacate their operation in Entiat over the life of the City's permit. In this case, the requirements for WET Testing under Conditions S9 and S10 would remain while the causative factor, which resulted in the imposition of these conditions, is no longer present. The City requests that language be included in the permit to the effect that the City may petition to have Condition S9 and S10 vacated if the industrial user ceases operation.

Special Condition S2.E. was added to the permit to allow the City the option of requesting revisions to this permit in the event a significant change occurs with industrial discharges to the POTW.